

REMARKS / DISCUSSION OF ISSUES

Claims 1 – 9 are pending in the application. Claims 1 and 7 are independent.

In the present response, the claims are not amended.

35 U.S.C. 103

Under 35 U.S.C. 103(a) the Office Action rejects claims 1, 2 and 6 – 9 over Hill (US 6,650,419) in view of Cameron (US 5,363,196); and claims 3 – 5 over Hill and Cameron and further in view of Hamada et al., (US 6,570,641, hereinafter Hamada).

Applicant submits that for at least the following reasons, claims 1 – 9 are patentable over the above cited references.

For example, claim 1, in part, requires:

“the first and second main parts being attached to said intermediate stage and being movable therewith for measuring respectively the distance between a first elongated plane mirror reflector on the chuck that is elongated in the first direction X and an elongated plane mirror reflector on the stationary base that is elongated in the second direction Y, and the distance between a second elongated plane mirror reflector on the chuck that is elongated in the first direction X and the elongated plane mirror reflector on the stationary base.” (Emphases added)

From the above, the claimed invention includes: (1) a first elongated plane mirror reflector on the chuck that is elongated in the first direction X; (2) an elongated plane mirror reflector on the stationary base that is elongated in the second direction Y; and (3) a second elongated plane mirror reflector on the chuck that is elongated in the first direction X. Therefore, there are three elongated plane mirrors: one elongated in the Y direction on the stationary base and two elongated in the X direction attached to the intermediate stage.

Hill, in Figs. 10a and 10b, discloses an off-stage mounted elongated mirror 310, and one elongated mirror 340 on a translation stage 304. However, Hill only discloses two elongated mirrors and does not disclose a first elongated mirror and a

second elongated mirror that are both on the translation stage. One elongated mirror on the translation stage is missing in Hill. Therefore, Hill fails to disclose the above claimed features.

Applicant submits that neither Hamada nor Cameron can cure the defects present in Hill as discussed above for claim 1. Although Cameron teaches the use of a plurality of interferometers to measure the displacement of a stage relative to a plurality of fixed reflectors (Fig. 2), there is no teaching or suggestion of the use of two elongated mirrors that are both elongated in the X direction and attached to the intermediate stage. Hamada discloses the use of reflex mirrors but does not teach or suggest the use of elongated mirrors. Therefore, Hamada and Cameron also fail to teach or suggest the claimed three elongated plane mirrors: one elongated in the Y direction that is on the stationary base and two elongated in the X direction that are attached to the intermediate stage.

In view of at least the foregoing, Applicant submits that claim 1 is patentable over the cited references.

Similarly, claim 7, in part, requires:

“measuring the position of the chuck relative to the stationary base by measuring a first distance between a first elongated reflector on the chuck and an elongated reflector on the stationary base using the first laser interferometer, and a second distance between a second elongated reflector on the chuck and the elongated reflector on the stationary base using the second laser interferometer.” (Emphases added)

Independent claim 7, although different from claim 1 and is to be interpreted independently, contains many similar distinguishing features as in claim 1. Applicant essentially repeats the above arguments for claim 1 and applies them to claim 7 pointing out why claim 7 is also patentable.

Claims 2 – 6, 8 and 9 respectively depend from and inherit all the respective features of either claim 1 or claim 7. Thus claims 2 – 6, 8 and 9 are patentable for at least the same reasons discussed above with respect to claims 1 and 7, from which

they respectively depend, with each dependent claim containing further distinguishing patentable features.

Withdrawal of the rejection of claims 1 – 9 under 35 U.S.C. 103(a) is respectfully requested.

Conclusion

In view of the foregoing, Applicant respectfully requests that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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